

Patent claims

1. Method for the production of non-woven fabrics, in which a cellulose carbamate solution is spun into a plurality of filament yarns by means of extrusion through a nozzle block containing at least 20 openings into a regenerating bath, said filament yarns being intermingled subsequently by being subjected to a flow with gaseous medium and/or fluid.
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2. Method according to claim 1,
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characterised in that a nozzle block with at least 10,000 openings is used.
3. Method according to one of the claims 1 or 2,
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characterised in that the openings of the nozzle block are disposed linearly or in an array-like manner.
4. Method according to one of the preceding claims,
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characterised in that the ratio of length to diameter of the nozzles is from 1 to 20.
5. Method according to one of the preceding claims,
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characterised in that the filament yarns are spun into the regenerating bath vertically from the bottom to the top.
6. Method according to one of the preceding claims,
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characterised in that the spinning of the filament yarns is effected in the wet state.

7. Method according to one of the preceding claims,

characterised in that the filament yarns are guided downwards after spinning into a slot-shaped funnel, the intermingling with the gaseous medium and/or fluid being effected at the outlet of the funnel.

8. Method according to the preceding claim,

characterised in that a further intermingling of the filament yarns is achieved by a shaking movement of the funnel.

9. Method according to one of the preceding claims,

characterised in that air and/or water are used as gaseous medium and/or fluid.

10. Method according to one of the preceding claims,

characterised in that the filament yarns are laid on a conveyor belt after the intermingling.

11. Method according to the preceding claim,

characterised in that a further intermingling of the filament yarns is achieved by a shaking movement of the conveyor belt.

12. Method according to one of the preceding claims,

characterised in that the cellulose carbamate is dissolved in sodium hydroxide solution.

13. Method according to the preceding claim,

characterised in that the cellulose carbamate proportion of the cellulose carbamate solution is at least 6 to 12, in particular 7 to 9% by weight, relative to the solution.

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14. Method according to one of the preceding claims,

characterised in that the regenerating bath comprises sulphuric acid with a concentration of 50 to 200 g/l, in particular 70 to 100 g/l, and also 100 to 300 g/l, in particular 150 to 200 g/l sodium sulphate.

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15. Method according to one of the preceding claims,

characterised in that the non-woven fabric is subsequently washed, pressed and dried.

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16. Method according to the preceding claim,

characterised in that the washing is effected by a water jet at high pressure.

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17. Method according to one of the preceding claims,

characterised in that the cellulose carbamate is regenerated into cellulose in a regenerating bath.

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18. Method according to the preceding claim,

characterised in that the regenerating bath comprises 0.3 to 1% by weight sodium hydroxide in water and the regeneration is effected at a temperature of 60 to 95°C.

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19. Method according to the preceding claim,

characterised in that the regeneration is implemented between extrusion and intermingling.

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20. Method according to claim 18,

characterised in that the regeneration is implemented after production of the non-woven fabric.

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21. Non-woven fabric comprising a random orientation of filament yarns made of cellulose carbamate.

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22. Non-woven fabric according to claim 21,

characterised in that the non-woven fabric can be produced according to the method according to one of the claims 1 to 16.

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23. Non-woven fabric comprising a random orientation of filament yarns made of regenerated cellulose.

24. Non-woven fabric according to claim 23,

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characterised in that the residual N-content is from 0.3 to 0.5%, in particular 0.1 to 0.2%.

25. Non-woven fabric according to one of the claims 23 or 24,

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characterised in that the non-woven fabric has a pore structure with a porosity of 1 to 10%.

26. Non-woven fabric according to one of the claims 23 to 25,

characterised in that the non-woven fabric has a specific internal surface
between 20 and 50 m²/cm³, measured by means of small angle x-ray
scattering, SAXS.

27. Non-woven fabric according to one of the claims 23 to 26,

characterised in that the non-woven fabric can be produced with the
method according to one of the claims 17 to 20.

28. Use of the non-woven fabrics according to one of the claims 21 to 27 in
medicine, in particular as operating sheets, bed sheets, surgical
dressings, gauzes or cotton wool pads.

29. Use of the non-woven fabrics according to one of the claims 21 to 27 as
hygiene materials or as household wipes.

30. Use of the non-woven fabrics according to one of the claims 21 to 27 as
decorative non-woven fabrics, in particular tablecloths, serviettes or
curtains.

31. Use of the non-woven fabrics according to one of the claims 21 to 27 as
non-woven liners in the clothing industry.

32. Use of the non-woven fabrics according to one of the claims 21 to 27 as
reinforcing mats and isolating jackets in the building industry.